

Introduction

Zachary Lahey¹, Elijah Talamas²

1 *Department of Evolution, Ecology, and Organismal Biology, The Ohio State University, 1315 Kinnear Road, Columbus, Ohio 43212, U.S.A.* **2** *Florida State Collection of Arthropods, Florida Department of Agriculture and Consumer Services, Division of Plant Industry, 1911 SW 34th St. Gainesville, Florida 32608, U.S.A.*

Corresponding author: Zachary Lahey (lahey.18@osu.edu)

Received 10 November 2021 | Accepted 12 November 2021 | Published 23 December 2021

<http://zoobank.org/DD6FA6A1-810A-4C1B-9CFB-7E1A50DC267D>

Citation: Lahey Z, Talamas E (2021) Introduction. In: Lahey Z, Talamas E (Eds) *Advances in the Systematics of Platygastridae III*. Journal of Hymenoptera Research 87: 1–4. <https://doi.org/10.3897/jhr.87.77874>

Advances in the Systematics of Platygastridae III builds on the foundation laid by its predecessors, presenting 17 articles authored by a diverse group of researchers. Like previous installments, these articles cover several active areas of platygastroid research including alpha and integrative taxonomy, paleontology, phylogenetics, morphology, and biological control.

Studies on Platygastridae comprise the first four papers. Awad et al. (2021) raise the bar for taxonomy in the subfamily Platygastrinae with their description of 16 new species of *Synopeas* from New Guinea in an integrative framework that includes plant associations and DNA barcoding. Talamas et al. (2021a) describe a new genus and species of Platygastridae from Burmese amber, utilizing information from both fossil and extant taxa. The subfamily Sceliotrachelinae is the subject of two articles that treat specimens from different continents. Lahey et al. (2021b) revise the Australian genus *Alfredella* and sink a genus that was erected for an apomorphic species of *Amitus*. Genus-level treatment of the sceliotracheline fauna of the Afrotropical region is presented by van Noort et al. (2021), with new species described in four genera, including revisions of Old World *Parabaeus* and the South African endemic genera *Afrisolia* and *Sceliotrachelus*.

Advances in imaging technologies have made it possible to non-invasively examine the internal anatomy of insects. Nowhere is this more valuable than in the study of fossil taxa for which specimens are often rare and dissections are not possible. Bremer et al. (2021) describe a new species of the previously monobasic *Janzenella*, the sole genus in Janzenellidae, preserved in Baltic amber. Their description utilizes synchrotron microtomography to visualize external and internal morphological characters that were otherwise inaccessible. Their analysis of internal structures dovetails with the morphological exploration of the internal mesosoma by Mikó et al. (2021b) that documents characters that have potential to help classify fossil taxa for which family-level placement is presently unclear.

The second half of this special issue comprises 11 papers on Scelionidae. Two of these are revisions of tropical genera that result in the description of 17 new species (Lahey et al. 2021a; Mikó et al. 2021a). The treatment of *Oxyscelio* by Mo et al. (2021) expands the known diversity of the Chinese fauna with a combined analysis of morphology and COI barcode data. The global importance of stink bugs and their associated parasitoids is evidenced by the remaining eight papers. These include molecular phylogenetic studies that result in the synonymy of *Latoni* under *Trissolcus* (Vasilița et al. 2021); the resurrection of *Hadronotus* for a portion of *Gryon* (Talamas et al. 2021b); the discovery of adventive parasitoids on two continents (Birkmire et al. 2021; Hogg et al. 2021; Rojas-Gálvez et al. 2021); interbreeding studies between populations of a new *Gryon* species (Hogg et al. 2021); a new, medically-important host association for *Telenomus fariai* (Ramírez-Ahuja et al. 2021); the description of a new species of *Trissolcus* from Iran (Ranjbar et al. 2021); and an analysis of chemoreceptor genes from *Trissolcus basalis* (King et al. 2021).

The increased number of papers in this special issue reflects the growing number of workers in Platygastroidea, which have historically been few in number. Importantly, it also reflects cooperation on a global level, with contributing authors from all inhabited continents.

References

- Awad J, Bremer JS, Butterill PT, Moore MR, Talamas EJ (2021) A taxonomic treatment of *Synopeas* Förster (Platygastridae, Platygastrinae) from the island of New Guinea. In: Lahey Z, Talamas E (Eds) Advances in the Systematics of Platygastroidea III. Journal of Hymenoptera Research 87: 5–65. <https://doi.org/10.3897/jhr.87.65563>
- Birkmire S, Penca C, Talamas EJ, Moore MR, Hodges AC (2021) *Psix striaticiceps* (Dodd) (Hymenoptera, Scelionidae): an Old World parasitoid of stink bug eggs arrives in Florida, USA. In: Lahey Z, Talamas E (Eds) Advances in the Systematics of Platygastroidea III. Journal of Hymenoptera Research 87: 503–521. <https://doi.org/10.3897/jhr.87.76191>
- Bremer J, Kamp T, Talamas EJ (2021) *Janzenella theia* Bremer & Talamas (Platygastridae, Janzenellidae): a new species from Baltic amber. In: Lahey Z, Talamas E (Eds) Advances in the Systematics of Platygastroidea III. Journal of Hymenoptera Research 87: 223–233. <https://doi.org/10.3897/jhr.87.67256>

- de Lourdes Ramirez-Ahuja M, Davila-Barboza JA, Talamas EJ, Moore MR, Bobadilla-Utrera C, Ponce-Garcia G, Rodriguez-Sanchez IP, Flores AE (2021) First record of *Telenomus fariai* Costa Lima, 1927 (Hymenoptera, Scelionidae, Telenominae) as a parasitoid of *Triatoma dimidiata* (Latreille, 1811) (Hemiptera, Reduviidae, Triatominae) eggs in Mexico. In: Lahey Z, Talamas E (Eds) Advances in the Systematics of Platygastroidea III. Journal of Hymenoptera Research 87: 309–322. <https://doi.org/10.3897/jhr.87.73546>
- Hogg BN, Hougardy E, Talamas E (2021) Adventive *Gryon aetherium* Talamas (Hymenoptera, Scelionidae) associated with eggs of *Bagrada hilaris* (Burmeister) (Hemiptera, Pentatomidae) in the USA. In: Lahey Z, Talamas E (Eds) Advances in the Systematics of Platygastroidea III. Journal of Hymenoptera Research 87: 481–492. <https://doi.org/10.3897/jhr.87.73778>
- King K, Meuti ME, Johnson NF (2021) Identification and expression of odorant binding proteins in the egg-parasitoid *Trissolcus basalis* (Wollaston) (Hymenoptera, Scelionidae, Telenominae). In: Lahey Z, Talamas E (Eds) Advances in the Systematics of Platygastroidea III. Journal of Hymenoptera Research 87: 251–266. <https://doi.org/10.3897/jhr.87.68954>
- Lahey Z, Musetti L, Masner L, Johnson NF (2021) Revision of *Phoenoteleia* Kieffer (Hymenoptera, Scelionidae, Scelioninae). In: Lahey Z, Talamas E (Eds) Advances in the Systematics of Platygastroidea III. Journal of Hymenoptera Research 87: 575–611. <https://doi.org/10.3897/jhr.87.59794>
- Lahey Z, Talamas E, Masner L, Johnson NF (2021) Revision of the Australian genus *Alfredella* Masner & Huggert (Hymenoptera, Platygastriidae, Sceliotrachelinae). In: Lahey Z, Talamas E (Eds) Advances in the Systematics of Platygastroidea III. Journal of Hymenoptera Research 87: 81–113. <https://doi.org/10.3897/jhr.87.58368>
- Mikó I, Masner L, Ulmer JM, Raymond M, Hobbie J, Tarasov S, Margaría CB, Seltsmann KC, Talamas EJ (2021) A semantically enriched taxonomic revision of *Gryonoides* Dodd, 1920 (Hymenoptera: Scelionidae), with a review of the hosts of Teleasinae. In: Lahey Z, Talamas E (Eds) Advances in the Systematics of Platygastroidea III. Journal of Hymenoptera Research 87: 523–573. <https://doi.org/10.3897/jhr.87.72931>
- Mikó I, Raymond M, Talamas EJ (2021) New family-level characters for Platygastroidea. In: Lahey Z, Talamas E (Eds) Advances in the Systematics of Platygastroidea III. Journal of Hymenoptera Research 87: 235–249. <https://doi.org/10.3897/jhr.87.72906>
- Mo W-h, Chen H-y, Pang H, Liu J-x (2021) DNA barcoding for molecular identification of the genus *Oxyscelio* (Hymenoptera, Scelionidae) from southern China, with descriptions of five new species. In: Lahey Z, Talamas E (Eds) Advances in the Systematics of Platygastroidea III. Journal of Hymenoptera Research 87: 613–633. <https://doi.org/10.3897/jhr.87.71912>
- Ranjbar F, Jalali MA, Ziaaddini M, Gholamalizade Z, Talamas EJ (2021) Stink bug egg parasitoids (Hymenoptera, Scelionidae) associated with pistachio in Iran and description of a new species: *Trissolcus darreh* Talamas. In: Lahey Z, Talamas E (Eds) Advances in the Systematics of Platygastroidea III. Journal of Hymenoptera Research 87: 291–308. <https://doi.org/10.3897/jhr.87.72838>
- Rojas-Gálvez NR, Talamas E, Albornoz MV, Flores MF, Barros-Parada W, Bout A (2021) *Gryon aetherium* Talamas (Hymenoptera, Scelionidae): Parasitoid of *Bagrada hilaris* (Burmeister)

- (Hemiptera, Pentatomidae) Adventive in Chile. In: Lahey Z, Talamas E (Eds) Advances in the Systematics of Platygastroidea III. Journal of Hymenoptera Research 87: 493–501. <https://doi.org/10.3897/jhr.87.75363>
- Talamas EJ, Popovici O, Shih C, Ren D (2021) *Prototeleia* Talamas, Popovici, Shih & Ren: A new genus of Platygastriidae from Burmese amber. In: Lahey Z, Talamas E (Eds) Advances in the Systematics of Platygastroidea III. Journal of Hymenoptera Research 87: 67–80. <https://doi.org/10.3897/jhr.87.65472>
- Talamas EJ, Bremer JS, Moore MR, Bon M-C, Lahey Z, Roberts CG, Combee LA, McGathey N, van Noort S, Timokhov AV, Hougardy E, Hogg B (2021) A maximalist approach to the systematics of a biological control agent: *Gryon aetherium* Talamas, sp. nov. (Hymenoptera, Scelionidae). In: Lahey Z, Talamas E (Eds) Advances in the Systematics of Platygastroidea III. Journal of Hymenoptera Research 87: 323–480. <https://doi.org/10.3897/jhr.87.72842>
- van Noort S, Lahey Z, Talamas EJ, Austin AD, Masner L, Polaszek A, Johnson NF (2021) Review of Afrotropical sceliotracheline parasitoid wasps (Hymenoptera, Platygastriidae). In: Lahey Z, Talamas E (Eds) Advances in the Systematics of Platygastroidea III. Journal of Hymenoptera Research 87: 115–222. <https://doi.org/10.3897/jhr.87.73770>
- Vasilița C, Popovici OA, Talamas E, Johnson N, Masner L, Tortorici F, Fusu L (2021) Molecular analysis reveals *Latoni* planus Kononova to be a derived species of *Trissolcus* Ashmead. In: Lahey Z, Talamas E (Eds) Advances in the Systematics of Platygastroidea III. Journal of Hymenoptera Research 87: 267–289. <https://doi.org/10.3897/jhr.87.63533>